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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,466	06/22/2006	Klaus Bohmhammel	292190US0PCT	3331

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EXAMINER	
NGUYEN, COLETTE B	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
09/21/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/584,466	BOHMHAMMEL ET AL.	
	Examiner	Art Unit	
	COLETTE NGUYEN	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the application.

This is the 2nd Office action

Claims 1 to 10 are as last presented and ready for reexamination

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roewer et al. (US5,716,590), in view of Corbin et al.(US5,600,040).

Roewer(590) discloses a process for catalytic hydrodehalogenation of a halogen-containing compound of carbon or silicon such as silicon tetrachloride to trichlorosilane in the presence of hydrogen with a catalyst system comprising of silicon and at least one transition metal. The process is carried out at 100-1000C. He does not disclose a catalyst system comprising elements of group 2 of the periodic table.

Corbin et al. (040) discloses a process to separate HFC-134 isomers (HFC-134 or HFC-134a by hydrodehalogenation), a refrigeration fluid, using selective sorbents such as carbons and zeolites with alkaline earth metals selected from the group consisting of calcium, strontium, barium and combinations thereof.(Corbin, Col.3, ln 47-52). The activated carbon, a supported catalyst, has a total content of 0.1 -10 wt% of alkali and alkaline earth metals (Corbin, col.3, ln47-52).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teaching of Corbin of a catalyst with alkaline earth metal such as Barium, Strontium, Magnesium, Calcium (the elements of the Group II in the periodic table), with the disclosures of Roewer of preparing trichlorosilan by hydrodehalogenation of silicon tetrachloride as both processes involve hydrodehalogenation process and the catalyst system of Corbin shows better selectivity and conversion therefore quality improvement in purification can be achieved. With

respect to the encompassing and overlapping ranges discussed herewith, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of the invention to select the portion of the prior art range which is within the range of the applicant claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. In *re Boesch*, 205 USPQ 215, in *re Malagari,* 182 USPQ 549. For the pressure, space velocity for the reaction, it would have been obvious to one of ordinary skill in the art to optimize these conditions through routine experimentation in order to obtain the best results

5. Regarding claim 1. Roewer in view of Corbin disclose a process for preparing trichlorosilan by catalytic hydrodehalogenation of silicon tetrachloride in the presence of hydrogen, in which an alkaline earth metal such as Barium, Strontium, Magnesium and Calcium and their mixture thereof are used as catalyst at a temperature in the range from 100-1000C (Roewer, Col 1, ln 58). The teachings encompass the instant claim

6. Regarding claim 3 and 4. Roewer in view of Corbin disclose a process as claim 1 wherein a supported catalyst is used (Col 3, ln 57 and Col4. ln 5, "activated carbons" and " zeolites").

7. Regarding claim 5. Corbin discloses supported catalyst content, calculated as element of 0.1 to 10% by weight (Col3, ln 46, "typically *the activated carbon used will have a total content of from about 0.1 to 10 weight percent of alkali and alkaline earth metals"*).

8. Regarding claim 6.Roewer teaches a 1 to 20 molecules of H_2 are used per halogen atom. The teaching encompasses the instant claim

9. Regarding claim 7. Corbin discloses the reaction can be carried out in a fixed – bed reactor, a fluidized-reactor or a moving-bed reactor. (Corbin, Col 5, ln. 28-35)

10. Regarding claim 8. Roewer in view of Corbin disclose a process as claimed in claim 1 wherein the catalytic reaction is carried out at a temperature in the range from 100- 1000C and at ambient pressure. (Roewer,Col 2, ln 57-62, and Col 3, ln46-58) and (Corbin, col 2, ln 10). The range overlaps the claimed range.

11. Regarding claim 9. Roewer in view of Corbin disclose a process as claim 1 wherein Roewer discloses that " *the optimum temperature thereby naturally varies for individual compounds, and also depends on process parameters, e.g. on the space velocity with respect to the catalyst*" (Col 3, ln47-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it is has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See in *re Boesch*, 205 USPQ 215.

12. Regarding claim10. Roewer in view of Corbin disclose a process as claim 1 wherein trichlorosilane is isolated from the product mixture or the product mixture is used further directly.

Response to Arguments

Applicant's arguments filed 05/18/2009 have been fully considered but they are not persuasive.

Roewer (590) discloses a process for preparing trichlorosilan ($HSiCl_3$) by catalytic hydrodehalogenation of silicon thetrachloride ($SiCl_4$) (abtract) at a temperature range of 100-1000C (Col 1, line 59) in the presence of hydrogen with transitional metal of group IV (Col1, line 65- Col 2, line 1-15). The process is advantageous in the course of recycling of a poly-halogenated starting material such as refrigerant R113 to CF_2=CHCl(Col2, line 40). Corbin (040) discloses a process to separate CF_3CH_2F and CHF_2CHF_2 by using a sorbent for CHF_2CHF_2 with alkali and/or alkali earth metal (Col3, line 60). As both Roewer and Corbin teach hydrodehalogenation and the materials are refrigerants, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teaching and optimize the process, especially knowingly that Roewer's transition metal has an issue of sintering at high temperature by substituting the teaching of Corbin of using alkali metal instead. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine,* 837 F.2d 1071,5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones,* 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).The rationale to modify or combine the

prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. *In re Fine*, 837 F .2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F .2d 347, 21 USPQ2d 1941 (Fed. Cir.1992). See also *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (setting forth test for implicit teachings); *In re Eli Lilly & Co.*, 902 F .2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990) (discussion of reliance on legal precedent); *In re Nilssen*, 851 F .2d 1401, 1403, 7 USPQ 2d 1500, 1502 (Fed Cir., 1988) (references do not have to explicitly suggest combining teachings); *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat App & Inter. 1985) (examiner must present convincing line of reasoning supporting rejection); and *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat App & Inter. 1993) (reliance on logic and sound scientific reasoning.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/COLETTE NGUYEN/
Examiner, Art Unit 1793
September 14, 2009

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793